ACTIVITY APPROACH TO THE DEVELOPMENT OF PROFESSIONAL COMPETENCE OF CIVIL SECURITY SPECIALISTS IN POSTGRADUATE EDUCATION (THE UKRAINIAN EXPERIENCE)

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Abstract: The practice of developing the professional competence of civil security specialists requires thorough study and experimental confirmation of existing problems. In the study, the authors propose the application of a pedagogical concept for the development of professional competence of civil security specialists in Ukraine, based on an activity approach. In the presented structural-logical scheme, separate elements of the activity approach to the development of professional competence of civil security specialists operate and interact with each other, and also focus on larger contextualizing systems to achieve the target result - the acquisition of new knowledge. The main goal of the study was to compare the level of development of the activity component of the professional competence of specialists in the process of improving their qualifications using educational and cognitive (project training, modeling, performing situational tasks, cases of various types) and practice-oriented (command and staff, object training, analysis of the professional situation, problem-based training) teaching methods with the effectiveness of traditional teaching methods, which are based on the informative and illustrative activities of specialists. The unit of analysis is a group of specialists with the appropriate category (for example, heads, deputy heads of structural subdivisions of executive power bodies and local self-government bodies, whose activities are related to the implementation of civil protection measures), who interact to achieve goals that characterize the development of their professional competence in the field of civil security. Based on the obtained results, the authors believe that the activity approach involves better mastering of knowledge, skills, personal and professional qualities by specialists, increasing their activity and motivation to study compared to the use of traditional methods. The authors of the study present their conclusions about the impact of the activity component on the profe

Keywords: activity approach; components of professional competence; civil safety specialist; experimental verification; effectiveness.

1 Introduction

At the beginning of the 21st century, education in the field of civil security in Ukraine experienced deep transformations. It can be assumed that these transformations are related to several reasons. The first one is represented by political changes and a significant number of major disasters, among which the manmade environmental and humanitarian disaster at the Chornobyl NPP occupies a special place. These and other transformations changed the previous paradigm of civil security, which at that time provided for a system of measures to protect people and material assets in the event of military operations. The priority of the new paradigm determined the protection of the population and territories from peacetime threats and the search for a new model of such protection, which should be accompanied by the transition from a technical and technological society to an information society and a learning society [3].

As the second reason, one can consider the state's awareness of the need to change the existing education system in the field of civil security, since the educational institutions of that time did not sufficiently prepare society for life in a new, changing reality. Such education has become an integral component of achieving a high level of safe life and activity of people, based on awareness, timely and effective professional actions of specialists [4]. The formation of competences of an innovative direction for specialists in the field of civil security becomes, in a certain sense, a weapon, given the need to strengthen the safety of people's lives and activities [15], since increasing technical potential alone is not enough to ensure state-guaranteed security.

While professionals organize and diligently solve problems to cope with the changes occurring in their professional lives, new real-world changes are rapidly catching up with them: socioeconomic processes currently taking place in Ukrainian society; risks, threats, and dangers of a natural, man-made and social nature, produced and provoked by society; the dangers caused by Russian aggression against Ukraine, as well as the desire of Ukraine to integrate into the European community, require further improvement of the activities of civil security specialists. At the same time, the determining factor should be education in the field of civil safety and its influence on the behavior of various social subjects in the probability of occurrence and degree of spread of new natural and man-made hazards.

The educational policy of Ukraine is aimed at solving these problems, the key issues of which are reflected in the national laws (laws of Ukraine "On Education" (2017), "On Higher Education" (2014), the Code of Civil Protection of Ukraine (2013), the draft Law of Ukraine "On Adult Education" (2022), Strategy for the Development of Higher Education in Ukraine for 2022-2032) and foreign (Copenhagen Criteria for Membership in the European Union (1993), Sustainable Development Strategy "Europe – 2030" (2019), Global Convention on the Recognition of Higher Education Qualifications (2019)) legislative and regulatory documents.

In the course of social development, which is marked by deep socio-cultural changes and radical transformations of the economic system, an avalanche-like increase in the amount of generated information plays a significant role. Due to its rapid growth, there are prolonged changes in the information field of society, which leads to a significant discrepancy between the pace of civilizational development and the traditional education system, that can be eliminated only under the condition of continuous educational activity. Therefore, as L. Lukyanova notes, the main theoretical innovation of the modern educational paradigm was the expansion of the concept of education [11, p. 21].

The philosophical and pedagogical idea of the continuity of education, which consists in creating opportunities for each person to acquire and replenish knowledge, develop, improve, and self-realize throughout life, is the most significant conceptual basis for the development of adult education [2]. At the EU Lisbon Summit in March 2000, a clear goal was set to make the European Union the most competitive and dynamic knowledge-based economy in the world [19]. The core of the "Education Declaration 2030: ensuring comprehensive, inclusive and fair quality education and lifelong learning" [8] is based on the humanistic concept of education and development, which has in its very foundation the awareness of the importance of human rights and dignity, social justice, protection of cultural, linguistic, and ethnic diversity. The Memorandum of Lifelong Education [1] substantiates the concept of continuous education, built on the principles of interaction between all types of learning - formal, non-formal, and informal, which opens up opportunities for human development throughout life. The provisions of continuous education were reflected in the National report "Goals of sustainable development: Ukraine", aimed at achieving an

increase in the level and quality of life of the population, compliance with the constitutional rights and freedoms of a person and a citizen [5].

According to scientists, adult education as a component of lifelong education, being a relatively independent social institution with its own vector of development, exerts an anticipatory influence on safety [12, p. 8]. Modern trends in the development of a safe society require an independent, self-sufficient individual who has good professional knowledge, skills, personal and professional qualities, and has the ability to act in a dynamically changing environment. Critical thinking skills and flexibility of methods of professional activity in solving security problems are important for specialists in the security industry [16, 21].

However, the question of which pedagogical concepts can be used to meet the requirements for the development of competences for different categories of specialists in the security industry remains open. The authors of the study believe that such concepts should be based, in particular, on modern methodological approaches aimed at finding new ideas and solutions, improving the efficiency of the professional activity of specialists. For the development of professional competence of such a category of specialists as heads, deputy heads of structural divisions of executive power bodies and local selfgovernment bodies, whose activities are related to the implementation of civil protection measures, as an option, it is possible to consider a pedagogical concept based on an activity approach, thanks to the potential formal, non-formal and informal education. At the same time, the professional competence of the specified specialists is considered as an integrated characteristic of the individual, which reflects the formation of professional knowledge, skills, organizational and professional qualities based on the components of civil protection, which allow them, taking into account experience, to successfully conduct professional activities aimed at protecting life and people's health in emergency situations [13].

The conclusions and provisions of the leading pedagogical theories, which reflect the trends in the development of the professional competence of specialists, are highlighted in the scientific works of E. Adamida, B. Bly, O. Dubasenyuk, Y. Engestrem, I. Zyazyun, L. Lukyanova, L., Petrenko, and others. Along with the general theoretical foundations of specialist training, scientists reveal various aspects of professional development. According to their conclusions, the activity approach involves the development of a specialist's ability to be highly active, with critical thinking, creative professional work taking into account one's own experience. According to S. Honcharenko, the essence of the activity approach lies in the existing process of human interaction with the surrounding world, which ensures the fulfillment of certain vital tasks. An active approach means identifying and describing those methods of action that should lead to the uncovering of the content of the concept in the educational material and the full assimilation of relevant knowledge [6, p. 500].

The leading idea of the activity approach to the development of the professional competence of civil security specialists is action in the interaction as a process of solving real educational and cognitive, practice-oriented educational tasks in view of the functional responsibility of specialists [15, p. 293]. A graphic representation of the structural and logical scheme of the active approach to the development of professional competence of civil security specialists is presented in Figure 1.

As can be seen from the figure presented, this approach is implemented due to the presence of the following main elements: subject, context, tool (resource), formal and defining rules. The subject can be an individual specialist or a group of civil security specialists who are trained during the course or inter-course period. Context is an (un)safe environment (situation, event) that is related to a material object, a technological system, or a problematic space in which activities in the field of civil security are carried out [10]. In this

environment, the result of activity is achieved through a wide range of physical or imaginary tools (resources) of professional development (standards, programs, methods, etc.). The subject uses the tools (resource) in the quest to transform the context according to the goal. Formally defined rules (norms, statutes, provisions, requirements) provided for in the activity approach are accepted and established organizational, legal and scientifictechnical (technological) principles that are managed during training, which determine the interaction of elements in the middle of the activity system.

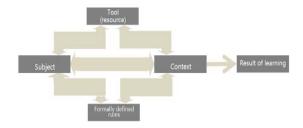


Figure 1. Structural and logical scheme of an active approach to the development of professional competence of civil security specialists

The activity approach to the development of the professional competence of the specified specialists represents a movement from individual actions to a holistic activity, a way of action and interaction aimed at the context, and leads to the formation of a new object. The active approach is determined by the desire to define and achieve a goal in the context that characterizes the development of professional competence of civil security specialists. The process of creating and systematizing new knowledge takes place by choosing a new way of its synthesis, formation and adoption of new views, which enables specialists to acquire new competencies. Such a choice is connected with access to one of the elements defined in this environment, where the transformation of activity takes place, internal contradictions in relationships and organization are expected during training, as a result, a process of self-organization and coherence of new knowledge occurs, which gives rise to new professional activity and generates it various specific manifestations. In each case, this means that specialists achieve new learning outcomes that they apply when performing civil security tasks. Questions for reflection make it possible to understand the educational and cognitive and practice-oriented tasks of civil security.

Information about the qualifications possessed by a civil security specialist and the competences he demonstrates is the basis for making personnel decisions regarding employment, periodic evaluation of his work, promotion on the career ladder or referral for training. If the verification of the specialist's qualifications does not raise questions, then the determination of the level of his professional competence, which must constantly develop and improve, needs attention.

The study of the state of development of specialists' professional competence creates a need for objective and unbiased diagnosis due to the use of valid tools [9]. Pedagogical diagnosis is a process of identifying and describing those relevant signs, qualities, properties that characterize a specialist in civil security issues at the stage of development, confirm the presence of certain factors and elements of his professional competence.

In our research, we proceed from the fact that the diagnostic apparatus should ensure obtaining objective data, should qualitatively characterize the pedagogical phenomenon - the development of professional competence of specialists; evaluate exactly what it is intended for, be adequate to the phenomenon for which it is used to measure, and make it possible to obtain quantitative parameters regarding the development of each of the structural components.

The activity component of the professional competence of specialists is considered particularly difficult to accurately measure, as it is related to the dynamic development of the field of civil security knowledge. Actually, activity in the specified field is the main condition for achieving the goals of developing a competitive specialist. The operational component of the professional activity of civil security specialists is particularly important, as it includes such elements as analyzing the situation, determining the goal of the activity, choosing the optimal ways to achieve the goal, implementing planned actions and evaluating the results; it involves the ability to understand the context in which the specialist works , and make decisions based on it.

The generalization of scientific views highlights the fact that a modern specialist increasingly has to solve civil security problems that had no analogues in the past, which requires the development of relevant knowledge, skills, personal and professional qualities. In connection with the fact that scientists pay more attention to the study of aspects of the training of future specialists in civil security issues [18], it is possible to conclude about the insufficiency of scientific achievements in the field of pedagogical science on the development of the activity component of professional competence, and, accordingly - the absence of results of experimental verification of effectiveness pedagogical influences on them.

In view of the above, the aim of objective and unbiased diagnosis of the activity component of the development of the professional competence of civil security specialists in postgraduate education, the dynamics of the development of the specified component is outlined.

2 Method

The general hypothesis of the study is the assumption that the level of professional competence of managers, deputy managers of executive authorities and local self-government bodies, whose activities are related to the implementation of civil protection measures, will ensure positive development if it is based on scientifically justified theoretical and methodological principles. Experimental verification of the basic hypothesis makes it possible to find out its relevance, if necessary, to design corrective actions regarding the content and technologies of pedagogical influence on the studied category of specialists, as well as methods and tools for evaluating the effectiveness of such influence.

For the specified category of specialists involved in the experiment, the sample population was 42 people (out of the general population of 386 people) based on their personal consent. The indicated number of the sample, the use of a complex of complementary diagnostic tools ensured the objectivity of the obtained data regarding the state of development of the professional competence of the pedagogical experiment participants.

Based on the works of scientists S. Honcharenko [6], L. Petrenko [17], Yu. Surmin [20]), we did not divide specialists into control and experimental groups. Our task was to compare the effectiveness of the study before and after the implementation of pedagogical influence.

The research was carried out in the institution of higher education and institutions of the field of civil security of Ukraine (Institute of State Administration and Scientific Research on Civil Protection, educational and methodical centers of civil protection and life safety of Volyn, Kyiv, Lviv, Sumy, Chernivtsi, Khmelnytskyi regions), which train specialists on matters of civil security.

The advanced training of the specified specialists was carried out using the most effective forms, methods and technologies during the course and inter-course periods of training, which are characterized by the appropriate content and means for their implementation. The course period involves theoretical development, improvement of the practical component of civil security, integration of the components of the specialist's professional competence. In turn, the inter-course period provides for individual training, group exercises during

command and staff training and special object training at the business entity's facility, etc.

The diagnostic toolkit of this study includes the use of well-known methods, supplemented by self-developed questionnaires. The developed author's questionnaire "Professional competence of civil security specialists" and the adapted technique "Communicative and organizational tendencies (KOS)" provide clarification of the level of development of the activity component of professional competence. The diagnostic toolkit for assessing the current level of development of the specified component of professional competence of specialists implies test control of knowledge, control tasks, self-assessment methods. The study was conducted during three months (February - April 2021).

The conducted research requires the application of several research methods to solve the tasks and test the research hypothesis:

- Theoretical: analysis of the results of scientific research on professional pedagogy; structural and functional analysis to determine structured requirements for knowledge, skills, personal and professional qualities, clarification of professional competencies; generalization for the formulation of conclusions and recommendations to ensure the effectiveness of the system of improving the qualifications of specialists; synthesis to reveal the essence of the chosen issue;
- Empirical: methods of expert assessment to identify key characteristics of civil security specialists, personal qualities that affect the level of their professional activity; surveys (questionnaires) to measure the current level of development of the components of professional competence of specialists; pedagogical experiment (formative stages) to check the state of development of professional competence of specialists in postgraduate education;
- Mathematical and statistical: quantitative and qualitative analysis to calculate the average value (X) as a generalized characteristic of a qualitatively homogeneous population based on a certain quantitative characteristic; statistical processing of the results of the experiment to determine the reliability of coincidences and differences in the experimental data, testing the hypothesis about the equality of the average values of the populations, analyzing the presence of dynamics of changes in professional development; $\chi 2$ for processing and interpretation of experimental research results; infographics for graphical display of the obtained results.

One of the important aspects of the research activity was building a relationship between the researcher and respondents based on mutual trust. Ethical principles were applied throughout the research process, which helped to prevent obstacles in data collection.

3 Results and Discussion

The professional competence of civil security specialists is built on a combination of mutually relevant components of professional competence, mobilized for active activity, enabling the successful performance of professional tasks in the field of civil security. Each of the components is filled with a certain content, the definition of which is based on the fact that civil security specialists have to perform professional tasks in conditions of uncertainty and risk, in extreme situations, etc.

In our opinion, the activity component is based on general techniques and methods of intellectual activity (analysis, synthesis), includes managerial activity as a way of achieving its results; personal-value one implies a set of personal professionally significant and valuable aspirations, beliefs, views, attitudes towards the product and the subject of activity. The specified component corresponds to the theory of personality development and the structure of subjectivity, and allows drawing a conclusion about the structure of professional competence of specialists [15].

The activity component is a complex system entity, represented by the parameters by which it is possible to observe and evaluate the development of the professional competence of specialists. For the development of the activity component of professional competence, a set of methodical support was developed (textbooks, educational and methodical manuals, practicum, practical advisors and methodical recommendations). Considering the importance of our research, we highlight: methodical recommendations "Conducting a complex practical session with management staff and specialists whose activities are related to the organization and implementation of civil protection measures (according to the case-study method)"; "Practical workshop for teaching staff of educational and methodical centers of civil defense and life safety on conducting practical classes using the method of analyzing specific educational situations"; methodological manual training of employees of enterprises, institutions, organizations for actions in emergency situations", compiled, in particular, taking into account the practical experience of Sweden and Germany regarding the training of the specified specialists.

To develop the professional competence of civil security specialists, we have implemented our own training organization technology. The specified technology, as a tool for the development of professional competence, is based on a cyclical basis to achieve the acmeological level of mastering a wide range of knowledge, skills, personal and professional qualities during the course and inter-course periods.

In the course of diagnosis, the level of development of the activity component of professional competence in the process of upgrading the qualifications of civil security specialists was calculated using the average number of typical correct and incorrect answers to questions in questionnaires about the components of this component according to the formula [7]:

$$X = \frac{X1 + X2 + X3 + X4 + \dots + Xn}{N}$$

where $\boldsymbol{X}-$ arithmetic mean;

 $X_1,\,X_2,\,X_3,\,\ldots\,X_n$ – the results of individual observations (sign values):

N – number of observations.

To measure the level of development of the activity component of the professional competence of civil security specialists, analytical and synthetic skills, managerial and communicative knowledge and skills were diagnosed according to the relative scale of mastery results: low level of development - 0-33%; average level of development - 34-66%; high level of development - 67-100%.

In the course of diagnosing the analytical skills development, the number of students of advanced training courses with a low level of their formation decreased from 45.20% to 14.29% (-30.91%), while the number of those who developed such abilities increased by 21.36% to the average level - from 33.40% to 54.76%, and those who reached a high level - by 9.55%, i.e., from 21.4% to 30.95%.

The number of respondents with a low level of development of synthetic skills decreased from 71.43% to 33.33%, that is, by 33.10%; with an average level, on the contrary, there is an increase of 38.09% (from 28.57% to 66.66%), at the same time, not a single specialist from the experimental group reached a high level.

It is worth noting the growth of the average level of development of management knowledge and skills from 9.60% to 57.20% in the group of respondents, i.e., by 47.60%, and the decrease of the low level - from 90.40% to 42.80% (- 47.60%).

There is also a decrease in the low level in the group of respondents regarding the development of communicative knowledge and skills, from 100% to 50%, and an increase to 50% in the number of respondents who have developed this ability to an average level.

The level of development of the components of the activity element of the professional competence of civil security specialists is illustrated by the graph in Figure 2.



Figure 2. Chart of indicators of the level of development of the elements of the activity component of the professional competence of civil security specialists (formative stage)

The obtained results of the comparative analysis, highlighted in Figure 3, illustrate the positive dynamics of the development of the activity component of the professional competence of civil security specialists at the beginning and at the end of the pedagogical experiment.

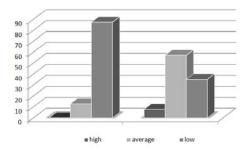


Figure 3. Dynamics of changes in the levels of the activity component of the professional competence of civil security specialists

The statistical significance of the results of the experimental work was proved using the Pearson χ^2 agreement criterion. The empirical value of χ^2 , which was calculated using the

formula: $\chi^2_{\rm emin} = N \cdot M \cdot \sum_{i=1}^L \frac{\binom{n_i - m_i}{N - m_i}}{n_i + m_i}$, exceeded its critical indicator ($\chi^2_{\rm emin} > \chi^2_{\rm ci}$). That is, 87.18 > 5.991 for \leq (\emptyset .05), which proved the non-randomness of the obtained data and the effectiveness of measures to improve the qualifications of civil security specialists in postgraduate education.

4 Conclusion

Deep and qualitative transformations in education in the field of civil security in Ukraine have become an integral component of achieving the level of safety of people's lives and activities, based on their awareness, timely and effective professional actions of civil security specialists. However, risks, threats and dangers of a natural, man-made and social nature, which are produced and provoked by society, require further improvement of the training of specialists, in particular, in postgraduate education.

Meeting the requirements for the development of professional competence of civil security specialists is possible with the use of modern methodological approaches aimed at finding new ideas and solutions to improve the efficiency of their professional activities. One of such methodological approaches is the activity approach, the leading idea of which is action in interaction as a process of solving real educational and cognitive, practice-oriented educational tasks in view of the functional responsibility of civil security specialists. Such an approach is implemented due to the presence of elements: subject, content, tool (resource), formal-determining rules, which in interaction represent a movement from individual actions to a holistic activity, that leads to the formation of new knowledge and gives rise to new activity and generates it various manifestations.

As a result of the conducted experimental verification of the effectiveness of the development of the activity component of the professional competence of civil security specialists, positive changes in the levels of its development were revealed. Changes in the levels of development of the components of the activity component of the professional competence of the specified specialists attest to their significance and determine the use of experimental methods of professional development. The obtained empirical data became the basis for substantiating the promising innovative directions of development of system of professional development of civil security specialists in postgraduate education at the national, institutional, and personal levels.

The presented results will contribute to the improvement of the quality of training of specialists within institutions in the field of civil security.

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